TWO NEW SPECIES OF PUNTIID FISH FROM THE YU RIVER SYSTEM OF MANIPUR[1]

(*With two text-figures*)

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Key words: *Puntius yuensis*, *Puntius meingangbii*, Yu river system, Manipur

Two new puntiid species namely, *Puntius yuensis* and *Puntius meingangbii* are described from the Yu River system of Manipur. These species belong to the *puntio* group in having no barbels, twenty to twenty-four lateral line scales and nine predorsal scales.

P. yuensis is very similar to *P. puntio* but easily distinguishable by its serrated simple dorsal ray, incomplete lateral line scale pores, distinct yellow colour at the caudal peduncle, meristic and morphometric characters.

P. meingangbii differs from its nearest species *P. phutunio* and *P. gelius* by the two distinct black bands on the lateral sides of the body, distinct red coloration on the flank of the body and caudal fin, serrated unbranched dorsal ray, dorsal fin with three black bands and eight prepelvic scales.

INTRODUCTION

Manipur is a northeastern state surrounded by hills and with a distinct geographical entity. Its drainage system can be divided into three river systems, the Barak river system, the Manipur river system and the Yu river system. Hora (1921) wrote that the interest in the ichthyofauna of Manipur lies in the fact that the State is drained by two distinct drainages: the western half, by the Barak-Brahmaputra drainage and the central and the eastern half, by the Chindwin drainage. The Barak-Brahmaputra drainage of Manipur is represented by the Barak river system, which drains the western part of the State and finally enters the Brahmaputra river system of India. The Chindwin drainage of Manipur is represented by the Manipur river system and the Yu river system, which drains the central and eastern part of the State respectively, both finally entering the Chindwin-Irrawady river system of Burma (Myanmar). Eastern parts of the State covered by the Yu river system and its neighbouring areas of Myanmar were also known as the Chindwin of Meaner.

The Puntiid fishes of the genus *Puntius* Hamilton are widely distributed in Manipur as reported by several workers: Hora (1921) reported six species from Manipur. Menon (1952, 1954) mentioned nineteen species of fishes including *P. clavatus*, *P. conchonius*, *P. phutunio*, *P. sarana* and *P. ticto,* which were collected from the central valley and its surrounding hills. Datta and Laishram (1984) reported nine species of *Puntius* from Manipur. Vishwanath Singh and Tombi Singh (1986) described a new species *P. jayarami* from the Chakpi stream of Manipur and Chakpikarong (24° 18' N, 93° 95' E), 80 km south of Imphal in the Manipur river system of Manipur. Tombi Singh (1991) listed ten species of *Puntius* from this State. Talwar and Jhingran (1991) listed forty-six species of the puntiid group from India and its adjacent countries. Jayaram (1991) revised the genus *Puntius* Hamilton from the Indian region and listed fifty-three species under ten groups and fourteen complexes. Arunkumar and Tombi Singh (1997, 1998) reported 80 species of fishes including 7 species of *Puntius* and described a new species *Puntius morehensis* from the Yu river system of Manipur.

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During field surveys in Manipur in 1997 and 1998, specimens of two undescribed species were collected from the Yu river system, Manipur. They are herein described as new species namely, *Puntius yuensis* and *Puntius meingangbii*.

Material and Methods

Fishes were collected from the Yu river system of Manipur and their fresh colours were noted. The fishes were then preserved in 10% formalin and brought to the Fishery Laboratory of Manipur University. The specimens were identified from Jayaram (1991) and Talwar and Jhingran (1991). All the catalogued and uncatalogued *Puntius* species of the Manipur University of Museum of Fishes (MUMF) were studied in detail and compared with the new species collected recently. Finally, the identified specimens were catalogued and deposited in the Natural History Section of Manipur State Museum (NHSMSM) and the Manipur University Museum of fishes (MUMF).

Puntius yuensis sp. nov.

Fig. 1

Manipuri name: Ngakha-Hangampal

Holotype: MUMF 500/1A, 58.0 mm TL, 44.0 mm SL, Maklang river, 21 km from Moreh, Manipur, 24.ii.1997, Morning, 200 m above msl, Coll. L. Arunkumar.

Paratypes: MUMF 500/4A, 12 ex., 38.0-68.0 mm TL, 29.0-55.0 mm SL, Moreh Bazar, 110 km from Imphal, Manipur 24.ii.1997, Evening, 220 m above msl, Coll. L. Arunkumar. NHSMSM 5645.

Diagnosis: A *Puntius* species of the *puntio* group, distinguished by distinctive yellow coloration in the caudal peduncle and encircled by a single distinct black band. A distinct black blotch present at the lateral line scale inside this black band. Dorsal spine serrated posteriorly. Lateral line scale pores incomplete. 8 predorsal scales. 7 prepelvic scales and 14 preanal scales present.

Description: Branchiostegal rays 4; D. 2/7; P. 1/10-12; V. 1/6-7; A. 2/5; C. 17-19; L.l. 21-22; L.tr. 4½/2½. Body not fairly deep, dorsal profile slightly elevated and arched. Snout plain. Mouth subterminal. Lips thin and plain. Barbels absent. Dorsal fin inserted nearer to the base of caudal fin than to tip of snout. Lateral line incomplete with 6 to 9 pores. Pectoral and pelvic fins are more or less equal in length. Pelvic fin not touching the anal opening. Circumpeduncular scales 10 to 11. Lateral line to anal fin origin scales 2½. 8 predorsal scales are present. Width of mouth is more or less same as internasal distance. Last unbranched dorsal ray less than length of head and depth of body.

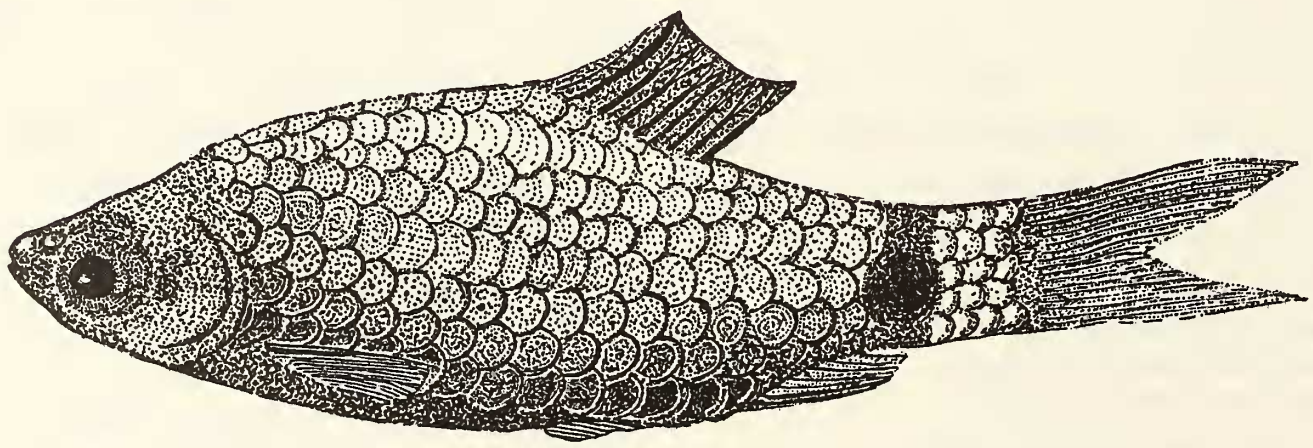

Fig. 1: *Puntius yuensis* sp. nov., paratype (MUMF 500/4A). 55 mm SL. Lateral View

Proportional measurements of holotype and paratypes (in parentheses): Length of head of occiput 15.52 (11.76-15.79) in total length. Length of caudal fin 31.84 (23.64-31.84), length of head at occiput 20.49 (14.55-20.70), predorsal length 54.64 (43.66-59.17), prepelvic length 50.00 (43.66-52.3), preanal length 78.18 (62.11-80.00), length up to preanal opening 72.99 (60.24-77.51) and width of body at dorsal fin origin 18.18 (13.79-18.18) in standard length.

Depth of head at occiput 90.98 (50.00-90.90), internasal distance 27.32 (12.5-27.32), height of caudal peduncle 54.64 (41.66-58.47), length of caudal peduncle 72.99 (58.47-72.09), length of dorsal fin base 52.08 (50.00-62.5), height of head at occiput 81.96 (66.66-81.96), length of snout 36.36 (20.83-36.36), length of pectoral fin 72.99 (66.66-75.18), width of head at nares 36.36 (25.00-36.36) and width of head at neck 63.69 (57.59-33.69) in length of head. Height of caudal peduncle 75.18 (71.42-87.71) in percentage of its length.

Colour: Body light yellowish. Dorsal light brown. Tip of anterior dorsal fin red. Caudal and anal fin light yellowish. Pectoral and ventral fin blackish. 18th and 19th scales of lateral line at caudal peduncle bear a black blotch with a black band.

Etymology: The type locality of the fish (Yu river system) gives the specific name of the fish.

Discussion: *P. yuensis* is known only from the Yu river system of Manipur at the lower zones of Maklang river and Lokchao river near Moreh. In the presence of a single band, it is most similar to *P. puntio*. However, *P. yuensis* differs from *P. puntio* in the presence of serrated unbranched dorsal ray, incomplete lateral line scale pores (6 to 9 vs. 23), less number of pectoral branched rays (10 to 12 vs. 15), distinct yellow coloration on the caudal peduncle region, length of head (17.66 to 23.09 vs. 25.00) in total length, and diameter of eye (86.95 to 100.00 vs. 133.33 to 200.00). The comparison of meristic and morphometric characters of *P. yuensis* and *P. puntio* is shown in Tables 1 and 2.

***Puntius meingangbii* sp. nov.**

Fig. 2

Manipuri name: Ngakha-Meingangbi

Holotype: MUMF 501/1A, 44 mm Total length, 34 mm Standard length. Moreh Bazar, Moreh 110 km from Imphal, Manipur, 24.ii.1997, evening, 220 m above msl. Coll. L. Arunkumar.

Paratypes: MUMF 501/2A, 11 ex., 39-45 mm TL, 30-35 mm SL, locality and collector same as Holotype. Uncat, MUMF, 14 ex; 41-43 mm TL, 30-33 mm SL, Manipur. NHSMSM 5646.

Diagnosis: A *Puntius* species of the *puntio* group, distinguished by the distinctive

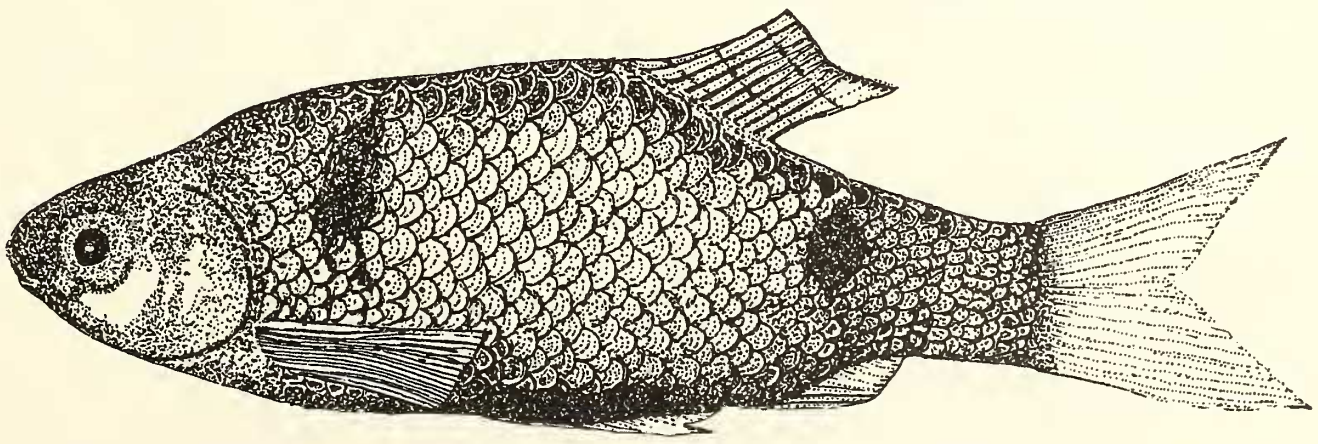

Fig. 2: *Puntius meingangbii* sp. nov., Paratype (MUMF 501/2A) 35 mm SL. Lateral View

Table 1: Comparison of selected meristic characters of *Puntius* based on literature sources

	P. yuensis sp. nov.		*P. puntio* (after Jayaram)	*P. meingangbii* sp. nov.		*P. phutunio* (after Jayaram)	*P. gelius* (after Jayaram)
	Holotype MUMF 500/1A	Paratypes MUMF 500/4A		Holotype MUMF 501/1A	Paratypes MUMF 501/2A		
Unbranched dorsal rays	2 (serrated)	2 (serrated)	3 (smooth)	(2 serrated)	2 (serrated)	2 to 3 (serrated)	2 (serrated)
Branched dorsal rays	7	7	8	8	8	8	8
Unbranched pectoral rays	1	1	-	1	1	-	-
Branched pectoral rays	11	10 to 12	15	15	15	15	14 to 15
Unbranched ventral rays	1	1	-	1	1	-	-
Branched ventral rays	6	6 to 7	8	7	7	8	8
Unbranched anal rays	2	2	2	2	2	3	3
Branched anal rays	5	5	5	5	5	5	5
Total caudal rays	19	17 to 19	21	18	18	19	19
Lateral line scales	22	21 to 22	23	23	21 to 23	20 to 23	23 to 24
Lateral line scale pores	6	8 to 9	23	6	6	3 to 4	4 to 6
Lateral line transverse scales	4½/2½	4½/2½	5½/2½	5½/3½	5½/3½	3½/4/3	4 to 5/3 to 4
Preanal scales	14	14	-	12	12	10 to 13	13
Predorsal scales	8	8	-	8	8	7 to 9	8
Prepelvic scales	7	7	-	8	8	5 to 6	6

Table 2: Comparison of selected morphometric characters of *Puntius* based on literature sources

	P. yuensis sp. nov.		*P. puntio* (after Jayaram)	*P. meingangbii* sp. nov.		*P. phutunio* (after Jayaram)	*P. gelius* (after Jayaram)
	Holotype MUMF 500/1A	Paratypes MUMF 500/4A		Holotype MUMF 501/1A	Paratypes MUMF 501/2A		
Unbranched dorsal rays	58	38-68	-	44	39-45	-	-
Standard length (mm)	44	29-55	-	34	30-35	21-38.5	20
In % of total length							
Length of head	18.97	17.66-23.09	25.00	22.72	20.00-23.09	-	-
Depth of body	25.90	22.07-27.62	30.00-33.33	27.32	25.64-26.66	-	-
In % of standard length							
Length of head	25.00	21.83-30.03	25.00	29.41	25.77-30.03	25.00-31.82	26.67-30.77
Depth of body	34.12	27.32-36.36	30.03-33.33	35.33	33.33-34.36	34.21-45.45	23.81-30.77
In % of length of head							
Height of head at occupit	81.96	66.66-81.96	-	68.24	66.66-68.96	84.61-100	66.67-100
Length of snout	36.36	20.83-36.36	-	25.00	22.22-27.27	28.57-33.33	33.33-40.00
Length of dorsal fin base	52.08	50.00-62.50	-	60.24	57.80-72.46	57.14-69.23	50.00
Width of mouth	22.22	20.00-25.00	-	22.22	15.01-22.22	21.00-28.57	25.00
Diameter of eye	36.36	25.00-36.36	25.00	25.00	22.22-27.77	28.57-35.45	33.33-50.00
In % of interorbital distance							
Diameter of eye	80.00	75.18-100	100	75.18	62.5-66.66	75.00-133	75.19-100
In % of length of snout							
Diameter of eye	100	86.95-100	133.33-200	100	100-100	100-116.67	75.19-100

combination of the following characters, only two black bands: one descending to the middle of the pectoral fin and the other across that portion of the anterior caudal peduncle which is above the anal fin; caudal fin and the flank of lateral side distinctly red. Dorsal fin with two to three black bands. Dorsal spine serrated posteriorly. 8 prepelvic and 12 preanal scales are present. Lateral line incomplete with 6 pores.

Descriptions: Branchiostegal rays 4, D. 2/8, P. 1/15, V. 1/7, A. 2/5, C. 18, L.l. 21-23, L.tr. 5½/3½. Dorsal and ventral profiles arched equally. Head short conical. Mouth terminal. Barbel absent. Dorsal fin slightly nearer to the base of caudal fin. Last unbranched dorsal ray less than length of head and depth of body. Width of mouth more or less equal to internasal distance. Length of dorsal fin base greater than height of caudal peduncle. 8 predorsal scales.

Proportional measurements of holotype and paratypes (in parentheses): Depth of body 27.32 (25.64-26.66), length of head at end of lateral operculum 22.72 (20.00-23.09) and length of head at occiput 13.64 (13.79-15.38) in total length. Length of caudal fin 29.41 (28.57-30.03), length of head at occiput 17.66 (17.73-20.00), width of body at dorsal fin origin 14.70 (16.66-17.15), width of body at anal fin origin 11.75 (11.42-13.33) length up to preanal opening 70.92 (68.96-75.18), preanal length 73.52 (71.42-78.74), prepelvic length 44.24 (45.87-53.47), predorsal length 47.16 (51.54-53.47), length of head at the end of lateral operculum 29.41 (25.77-30.03) and depth of body 35.33 (33.33-34.36) in standard length.

Interorbital distance 40.00 (33.33-44.44), length of head at occiput 68.24 (66.66-68.96), diameter of eye 25.00 (22.22-27.77), length of pectoral fin 88.42 (87.29-89.29), depth of head at occiput 60.24 (78.12-78.12), length of snout 25.00 (22.22-27.77), internasal distance 20.00 (22.22 - 22.22), length of caudal peduncle 60.24 (66.66-78.12), height of caudal peduncle 50.00 (44.44-55.55) and length of dorsal fin base 60.24 (57.80-72.46) in head length at the end of lateral operculum.

Colour: Dorsal side of body greenish to blackish. Dorsal fin with 2 to 3 (mainly 2) black bands. Pectoral fin blackish. Ventral and anal fin blackish-red to red. Tip of snout black with minute black dots. Caudal peduncle spot present on the 16th to 18th scales along the lateral line. 3rd and 4th lateral line scales bear the first black blotch.

Etymology: From the Manipuri word 'Meingangbi' meaning red coloured tail; allusion to the ground colour of body, treated as an adjective in apposition.

Discussion: *Puntius meingangbii* is widely distributed in Manipur State. It is easily distinguished from *P. phutunio* by the distinct red coloration of flank and caudal fin, with two black bands on the lateral sides of body. In *P. phutunio*, four black bands are present on the lateral sides of body instead of two black bands. The dorsal fin base of *P. meingangbii* is greater than the height of caudal peduncle but it is less in *P. phutunio*. The meristic characters are also different from *P. phutunio*, namely branched ventral rays (7 vs. 8), unbranched anal rays (2 vs. 3), total caudal rays (18 vs. 19) and lateral line scale to origin of dorsal fin scales (5½ vs. 3½) and prepelvic scales (8 to 7 vs. 5 to 6) (Table 1). The morphometric characters are also different from *P. phutunio*, namely height of head at occiput (66.66 to 68.96 vs. 84.61 to 100), length of snout (22.22 to 27.77 vs. 28.57 to 33.33) in length of head, and diameter of eye (62.5 to 75.18 vs. 75.00 to 133) in interorbital distance (Table 2).

P. meingangbii also differs from *P. gelius* in the following distinctive characters: last unbranched dorsal ray less than length of head and depth of body, branched ventral rays (7 vs. 8), unbranched anal rays (2 vs. 3), total caudal rays (18 vs. 19). Preanal scales (12 vs. 13), prepelvic scales (8 vs. 6), depth of body (33.33 to 35.33 vs. 23.81 to 30.77) in standard length.

Height of head at occiput (66.66 to 68.96 vs. 66.67 to 100), length of snout (22.22 to 27.77 vs. 33.33 to 40.00), diameter of eye (22.22 to 27.77 vs. 33.33 to 50.00) in percentage of length of head, (100.00 vs. 79.19 to 100) in percentage of snout, (62.5 to 75.18 vs. 75.19 to 100) in percentage of interorbital distance (Table 2).

Materials Compared: *Puntius gelius* ZSI, F. 13073/1, 1 ex., 20.00 mm SL, Dhamtari Bazar, Mahanandi. *Puntius phutunio* ZSI, F.2120/2, 3 ex., 21.00-22.00 mm SL, Darrang, Assam. ZSI, F.2518/2, 2 ex., 38.00-38.5 mm SL, Medha, Satara district; collected by S.P. Agharkar.

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